REMARKS

This amendment is responsive to the Office Action of October 9, 2007. Reconsideration and allowance of claims 1-18 are requested.

The Office Action

The Office Action indicates that claims 1-11 stand rejected, but does not set forth any grounds of rejection.

The Present Amendment

As set forth in the "Background" of the present application, when an operator prepares to perform a magnetic resonance examination, the operator typically sets a plurality of scan parameters, such as the sequence, contrast, resolution, field of view, slice orientation, region of interest within a slice, phase encoding direction, whether a parallel imaging technique is to be utilized, whether a foldover imaging technique is to be utilized, and the like. Commonly, the operator wants to optimize both the signal-to-noise ratio and the scan time. However, maximizing a signal-to-noise ratio often results in a longer scan time and minimizing a scan time often results in a lower signal-to-noise ratio.

The present application describes a technique by which the operator can select one scan parameter, such as the signal-to-noise ratio or the scan time, and optimize another scan parameter, such as the other of the signal-to-noise ratio and the scan time. More specifically to the described embodiment, a reference image (e.g., the image which can be used to determine the individual coil sensitivities in parallel imaging technique) is analyzed to determine which of a plurality of sets of scan parameters will achieve the specified scan parameter and optimize the other.

Gonzales Ballester (US 6,949,928; US 2004/0070394) analyzes a reference image to determine sensitivity maps for a plurality of element coils. Gonzales Ballester focuses on mathematical techniques for analyzing the reference image in order to create high precision sensitivity maps, even when the imaging region is such that only coarse echo data is acquired from the region [0013]. Gonzales Ballester is silent regarding the selection of scan parameters, minimizing scan time, optimizing signal-to-noise ratio, and the like. Gonzales Ballester focuses

on creating the best possible sensitivity maps which will be used with whatever scan parameters the operator may choose.

The Claims Distinguish Patentably Over the References of Record

Claim 1 calls for providing a target value of a specific scan parameter. Gonzales Ballester does not disclose or fairly suggest providing a target value of a specific scan parameter. Rather, Gonzales Ballester optimizes the sensitivity maps which are created for the various element coils.

Moreover, claim 1 calls for determining an optimum scan parameter set according to the target value of the specific scan parameter. While Gonzales Ballester controls the magnetic resonance scanner with a set of scan parameters in order to generate a final image, Gonzales Ballester is silent as to how such scan parameter data set was determined. Further, it should be noted that the sensitivity map enhancement technique of Gonzales Ballester is independent of the scan parameter set which is used to generate the final image.

Accordingly, it is submitted that **claim 1 and claims 2-9 and 11 dependent therefrom** are not anticipated by and distinguish patentably over Gonzales Ballester.

Claim 4 calls for the specific scan parameter to be scan time. Gonzales Ballester does not describe determining an optimum scan parameter set according to a target value of the scan time.

Claim 5 calls for the specific scan parameter to be the signal-to-noise ratio. Gonzales Ballester does not select a scan parameter set based on a specified signal-to-noise ratio.

Claim 6 calls for determining image noise for a number of predetermined scan parameter sets. Gonzales Ballester does not disclose determining image noise, much less determining image noise for each of a number of predetermined scan parameter data sets. Rather, Gonzales Ballester optimizes sensitivity maps.

Claim 7 calls for the predetermined scan parameter sets to include sets with different orientations of the phase-encode direction. Gonzales Ballester does not disclose determining image noise for different orientations of the phase encode direction.

Claim 8 calls for the predetermined scan parameter sets to include sets with different rectangular fields-of-view. Gonzales Ballester does not address a rectangular field-of-view, much less scan parameter sets with different rectangular fields-of-view.

Claim 9 calls for automatically performing a scan using the determined optimum scan parameter data set. Gonzales Ballester does not disclose automatically performing a scan based on a determined optimum scan parameter set.

Accordingly, it is submitted that **claims 1-9 and 11** are not anticipated by and distinguish patentably over Gonzales Ballester.

Claim 10 calls for an operating device for providing an apparatus for generating magnetic resonance images with a target value of a scan parameter. Gonzales Ballester does not disclose an apparatus that provides a target scan parameter.

Claim 10 further calls for a control device that determines, based on reference scan data, an optimum scan parameter set according to the target value of the specified scan parameter. Gonzales Ballester does not disclose determining an optimum scan parameter set, much less determining such a set in accordance with a target value of a scan parameter.

Accordingly, it is submitted that **claim 10** is not anticipated by and distinguishes patentably over Gonzales Ballester.

New **claims 12-18** set forth concepts from claims 1 and 3-9 in different combinations with a different scope in order to better protect the present concepts.

CONCLUSION

For the reasons set forth above, it is submitted that all claims distinguish patentably over the references of record and meet all statutory requirements. An early allowance of claims 1-18 is requested.

In the event the Examiner considers personal contact advantageous to the disposition of this case, she is requested to telephone Thomas Kocovsky at (216) 861-5582.

Respectfully submitted,

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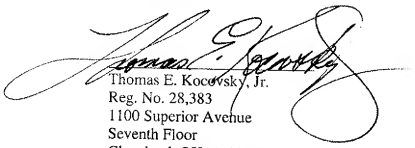

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